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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/155,635	07/09/1999	HIDEHARU SATO	48699	8942
21874	7590	11/16/2006	EXAMINER	
EDWARDS & ANGELL, LLP			LEWIS, BEN	
P.O. BOX 55874			ART UNIT	
BOSTON, MA 02205			PAPER NUMBER	

1745

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/155,635

Applicant(s)

SATO ET AL.

Examiner

Ben Lewis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 9-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>7/11/06</u> | 6) <input type="checkbox"/> Other: ____ |

Detailed Action

1. The Applicant's amendment filed on August 16th, 2006 was received. Claims 1,5,11,24 and 31 were amended. Claims 1 and 10 were amended. Claims 13-16 were added.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action (issued on January 11th, 2006).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 9, 11 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Yamada et al., US Patent 6,040,092.

Yamada et al. disclose lithium secondary batteries having anode active materials, formed from graphite coated with a less crystalline carbon. (Note abstract.)

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In a specific embodiment, artificial graphite powder KS 25 is used as the core graphite material. The core graphite has a particle size of 14 μm , a surface area of 10.3 m^2/g and a R value of 0.2. The ratio R is the ratio of the intensity of the Raman peak in the vicinity of 1360 cm^{-1} to the intensity of the Raman peak in the region 1580 cm^{-1} .

(Column 3, lines 30-34) (Column 10, lines 39-45).

The core graphite material satisfies applicants' formula $y \leq (42 \text{ m}^2/\text{g} \cdot \mu\text{m}^{-0.6})(x)^{0.6}$ where y is surface area in m^2/g , x is particle size in μm , $4.9 \leq y \leq 25$, and $4 \leq x \leq 40$ since

$$10.3 \text{ m}^2/\text{g} \leq (52 \text{ m}^2/\text{g} \cdot \mu\text{m}^{-0.6})(14\mu\text{m})^{-0.6} = 10.7 \text{ m}^2/\text{g}.$$

The coated graphite material disclosed by Yamada et al. has a particle size of 18 μm and a surface area of 3.8 m^2/g . (Column 10, line 63-column 11, line 1.) Therefore, the coated graphite material also satisfies the formula $y \leq (52 \text{ m}^2/\text{g} \cdot \mu\text{m}^{-0.6})(x)^{-0.6}$ where y is surface area in m^2/g and x is particle size in μm and $0.1 \leq y \leq 20$, $4 \leq x \leq 30$ since

$$3.8 \text{ m}^2/\text{g} \leq (52 \text{ m}^2/\text{g} \cdot \mu\text{m}^{-0.6})(18\mu\text{m})^{-0.6}$$

$$3.8 \text{ m}^2/\text{g} \leq 9.18 \text{ m}^2/\text{g}.$$

With regards to claims 11 and 12, Yamada et al., teach the R values of their inventive cathode materials should be "not more than 0.4". (Column 3, Lines 20-33) This recitation is considered to encompass values ranging from 0 to 0.4, which encompasses the ranges of R values recited in applicants' claims 11 and 12. Thus, the claims are anticipated.

Claim 9 is a product by process claim. The calcining and pulverizing steps of claim 9, do not further limit the product of claim 9. MPEP 2113 states, "Even though product-by-process claims are limited by and defined by the process, determination of patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 698,227 USPQ 964,966 (Fed Cir. 1985).

Claim Rejections - 35 USC § 102/103

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claim 10 is rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yamada et al., US Patent 6,040,092.

With respect claim 10, as discussed above, Yamada et al. disclose applicants' invention essentially as claimed, with the exception that Yamada et al. do not disclose a half width value of the $1570\text{-}1620\text{ cm}^{-1}$ Raman peak between 14 to 22. However, it is the position of the examiner that the properties of said material, such as the shapes of Raman peaks observed for graphite which are determined by the defects present in the graphite materials are inherent, given that the graphitic material disclosed by Yamada et al and the present application are similar. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999).

Alternatively applicants' invention as a whole would have been obvious to one of ordinary skill in the art. The shapes of Raman peaks observed for graphite will be determined by the defects present in the graphite materials, and since the graphites disclosed by Yamada et al. and the applicants are similar, the shapes of the Raman spectra must be similar.

As evidence, note the website <http://www.nims.go.jp/ldynamics/Raman/Raman5.html> which shows Raman spectra of graphite being disordered by ion irradiation.

Discovery of optimum value of result effective variable in known process is ordinarily within skill of art. In re Boesch, CCPA 1980, 617F.2d 272, 205 USPQ215.

Newly submitted claims 13-16 are directed to an invention that is independent or distinct from invention originally claimed for the following reasons: The subject matter of aforementioned claims is a process for producing an amorphous carbon-coated graphitic carbonaceous material for use as a negative electrode in a lithium ion secondary battery, which is a distinct invention directed to a product being "a lithium secondary battery" as recited in the original claims.

Since the applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 13-16 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP 821.03.

Furthermore, the general policy of the Office is not to permit the applicant to shift to claiming another invention after an election is once made and action given on the elected subject matter. Note that the applicant cannot, as a matter of right, file a request for continued examination (RCE) to obtain continued examination on the basis of claims that are independent and distinct from the claims previously claimed and examined (i.e., applicant cannot switch inventions by way of an RCE as a matter of right). When claims are presented which the examiner holds are drawn to an invention other than the one elected, he or she should treat the claims as outlined in MPEP § 821.03.

Response to Arguments

8. Applicant's arguments filed on August 16th, 2006 have been fully considered but they are not persuasive.

Applicant's principle arguments are

(a) Yamada does not satisfy the requirement that the BET specific surface area (y , expressed as m^2/g) be in the range $4.9 \leq y \leq 25$.

(b) *The material cited by the Examiner is a coated graphite, not a graphite material which forms the core of the coating material.*

(c) *None of the materials to which the Examiner pointed in Yamada has an R value of at most 0.15, as required by claim 11, or at most 0.11 as required by claim 12.*

(d) *Yamada was apparently not coated with an amorphous carbon-coated carbonaceous material prepared by coating the particle surfaces of a graphite material with a carbonizable organic material, calcining and pulverizing the coated graphite material, as required by bending claims 9-12.*

(e) There is simply no basis for the Examiner to assert that the Yamada materials inherently meet the limitations of the claims. The Examiner has apparently taken the position that the value of R is a "result-effective variable." But has not pointed to any teaching or suggestion in Yamada patent to support that conclusion.

In response to Applicant's arguments, please consider the following comments.

(a) The core graphite material satisfies applicants' formula $y \leq (42 \text{ m}^2/\text{g} \cdot \text{um}^{-0.6})(x)^{-0.6}$ where y is surface area in m^2/g , x is particle size in um , $4.9 \leq y \leq 25$, and $4 \leq x \leq 40$ since

$$10.3 \text{ m}^2/\text{g} \leq (52 \text{ m}^2/\text{g} \cdot \text{um}^{-0.6})(14 \text{um})^{-0.6} = 10.7 \text{ m}^2/\text{g}.$$

(b) Yamada et al. disclose lithium secondary batteries having anode active materials, formed from graphite coated with a less crystalline carbon. (Note abstract.)

(c) Yamada et al., teach that the R values of their inventive cathode materials should be "not more than 0.4". (Column 3, Lines 20-33). This recitation is considered to encompass values ranging from 0 to 0.4, which encompasses the ranges of R values recited in applicants' claims 11 and 12. Thus, the claims are anticipated.

(d) Claim 9 is a product by process claim. The calcining and pulverizing steps of claim 9, do not further limit the product of claim 9. MPEP 2113 states, "Even though

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product-by-process claims are limited by and defined by the process, determination of patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process.” In re Thorpe, 777 F. 2d 698,227 USPQ 964,966 (Fed Cir. 1985).

(e) Yamada et al. disclose applicants' invention essentially as claimed, with the exception that Yamada et al. do not disclose a half width value of the $1570\text{-}1620\text{ cm}^{-1}$ Raman peak between 14 to 22. However, it is the position of the examiner that the properties of said material, such as the shapes of Raman peaks observed for graphite which are determined by the defects present in the graphite materials are inherent, given that the graphitic material disclosed by Yamada et al and the present application are similar. A reference which is silent about a claimed invention's features is inherently anticipatory if the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. In re Robertson, 49 USPQ2d 1949 (1999).

Alternatively applicants' invention as a whole would have been obvious to one of ordinary skill in the art. The shapes of Raman peaks observed for graphite will be determined by the defects present in the graphite materials, and since the graphites disclosed by Yamada et al. and the applicants are similar, the shapes of the Raman spectra must be similar.

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As evidence, note the website <http://www.nims.go.jp/ldynamics/Raman/Raman5.html> which shows Raman spectra of graphite being disordered by ion irradiation.

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Examiner's teaching or suggestion in Yamada patent to support the "result-effective variable." Conclusion is that the graphites disclosed by Yamada et al. and the applicants are similar (See Paragraph 4. above).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben Lewis whose telephone number is 571-272-6481. The examiner can normally be reached on 8:30am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications^{*} is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ben Lewis


PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER

Patent Examiner
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